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Multi-year Analytical Plan: 2008/2009 to 2010/2011

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Introduction

Since 2007/2008, Statistics Canada has centred analysis of data holdings related to health as well as our program of dissemination of health research within the new Health Information and Research Division (HIRD). This new division brings together analytical teams from Health Statistics Division, the Health Analysis and Measurement Group and the Physical Health Measures Division. The mandate of the new division is to provide high quality, relevant and comprehensive research and information on the health status of the population and on the health-care system.

The new division has launched a comprehensive approach to analytical planning including environmental scanning and consultation; establishment of strategic multi-year priorities for health research at Statistics Canada; a process of project selection and review that ensures that analytical effort addresses our priorities; metrics to measure our adherence to priorities and the impact of our analytical effort; and communication and dissemination of analytical plans.

This multi-year analytical plan identifies the key high-level priority areas for Statistics Canada's investment in health research for 2008/09 to 2010/2011, and serves as a blueprint for subsequent operational research planning. The plan is the result of internal and external consultations and environmental scanning.

For more information about this plan, the Health Information and Research Division or its products and services, please contact us at *HIRD-DIRS@statcan.gc.ca*.

About the Health Information and Research Division

HIRD is an amalgamation within Statistics Canada of the former Health Analysis and Measurement Group of Analytical Studies Branch, the Analytical Studies Section of Health Statistics Division and the Analytical Group of Physical Health Measures Division. Together we form a group of forty, including researchers, editors, managers and dissemination officers. Our research program is rich and varied and addresses themes such as wait times and access to care; health care outcomes; social determinants of health (income, education, marital status); mental health, chronic disease and injury; inequity in health and vulnerable populations including Aboriginal peoples; aging and mortality; child health and development; and risk factors and disease trajectories (osteo-arthritis, CVC, cancer, diabetes).

HIRD staff draw upon Statistics Canada's databases and analyse them with the most appropriate techniques to answer research questions of interest. We undertake cross-sectional and longitudinal analysis, as well as projections and simulations. Data are often integrated from multiple sources and may be linked at the person or other level when required and approved. As Statistics Canada is a world leader in the development of continuous time microsimulation models, within HIRD we develop and continue to expand the Population Health Model (POHEM), a microsimulation model of risk factors, disease incidence and prevalence, disease progression and population health outcomes.

HIRD research contributes to the development of quality data collection in the health field and informs Canadians about the health of the population and the health care system. HIRD analysts work closely with Health Statistics Division and Physical Health Measures Division data development teams to contribute to survey planning and survey content development, as well as to ensure that our program of analysis responds to program needs, particularly analysis to accompany first releases of new data. HIRD conducts cutting-edge research using health-related StatCan data sources. HIRD analysts also offer advice, support and sometimes training to external data users.

HIRD's research program is often undertaken in collaboration with partners in health ministries, health organizations and universities. Key external funding partners for the 2007/2008 analytical program include Health Canada, the Canadian Institute for Health Information, the Canadian Council on Learning, Indian and Northern Affairs Canada, the Health Council of Canada, as well as numerous collaborations with external researchers with funding through grants from the Canadian Institutes for Health Research or the US National Institutes of Health.

HIRD publishes Statistics Canada's principal knowledge translation vehicle for health, *Health Reports*, a peer-reviewed and indexed journal of population health and health services research. HIRD research is published by Statistics Canada through *Health Reports*, other departmental publications and through peer-reviewed journals and partner organizations' publications.

Health Statistics at Statistics Canada

Statistics Canada collects a comprehensive suite of data on the health of Canadians and the functioning of the health system. Within our organization, we conduct surveys of Canadians to understand the status of the nation's health, characteristics and behaviors that promote health or place us at risk of ill health, interaction with the health system, and health dynamics and outcomes. Through partnerships with provinces and territories, we compile the nation's vital statistics and national statistics from the cancer registries. We also partner with provinces and territories and with the Canadian Institute for Health Information to bring administrative statistics on health care into our statistical program.

The pillars of the health statistics program include:

Vital Statistics Program (VS)

The VS Program includes administrative censuses of births, stillbirths, marriages, divorces and deaths. The VS Program is a long-standing partnership among all provincial and territorial vital statistics registrars and Statistics Canada initiated in 1921. Information is person-based and includes demographic characteristics and cause of death. Through the VS Program, statistics are produced on birth outcomes, deaths, demographic projections of the population and life expectancy estimates. Such data are critically important for monitoring the health status of any population, and form the foundation for comprehensive linkage studies. Data elements such as multiple causes of death, small-area geography, nature of injury and complete birth registration data are vital for comprehensive analysis of several areas of health.

Canadian Community Health Survey (CCHS)

The CCHS originates from the Health Information Roadmap, a shared vision among the Canadian Institute for Health Information (CIHI), Health Canada, Statistics Canada and provincial and territorial ministries of health to build a comprehensive national health information system and infrastructure. This initiative was initially approved as part of the February 1999 Federal Budget and has since obtained permanent funding (2003) as a key component in the need to produce comparable population health and health systems performance indicators following F/P/T Accords on health-care funding.

The objectives for the CCHS are to provide cross-sectional population health information to address data needs at the national, provincial and regional levels. The CCHS program consists of two cross-sectional surveys, with independent samples, conducted over a two-year repeating cycle. The first survey is designed to collect data from a sample large enough to provide reliable information for each province and territory, and more than 125 health regions across Canada. The second survey is used to focus more in-depth on very important health issues, such as mental health (2002), nutrition (2004), and aging (forthcoming 2008) and provides data at the national and provincial levels. The CCHS is the only national cross-sectional survey on the health status of Canadians, important health determinants, and health-care services use.

The Health Services Access Survey, a subset of which is now a component of CCHS, collected a range of information on 24/7 access to first contact or primary-care services. These data underlie several of the comparable indicators pursuant to the First Ministers Accord, including access to a regular family doctor, and difficulties accessing routine and immediate care.

National Population Health Survey (NPHS)

The NPHS was launched in 1994 to follow a panel of more than 17,000 respondents every two years for up to 20 years. The survey measures variations over time in the health status of Canadians, and in doing so, the relationship between health, various determinants, and the use of health-care services. The NPHS is currently the only population survey that measures the temporal relationship between pre-existing conditions and subsequent outcomes. Longitudinal data are also essential in understanding the dynamics of health-related phenomena. For example, the NPHS longitudinal data has been used to reveal transitions into and out of activity limitations and dependency; initiation and cessation of tobacco consumption; health factors associated with outcomes related to aging; factors associated with weight gain; and the dynamics of immigrants' health over time.

Canadian Health Measures Survey (CHMS)

The Canadian Health Measures Survey (CHMS) was launched in 2007 to assess the health of Canadians through the collection of direct health measures such as height and weight, blood pressure, and the collection of samples from urine and blood. From the direct measures, the CHMS will be producing indicators of chronic disease, infectious disease, environmental toxin exposure, and physical activity and fitness.

Longitudinal Health and Administrative Data Initiative (LHAD)

Provincial Ministries and Departments of Health are working with Statistics Canada to develop the LHAD Initiative. This Initiative is a partnership to expand the capacity for pan-Canadian research involving the linkage of health care administrative data to population health surveys and cancer and vital statistics registries. Through this initiative, Statistics Canada's existing Person-Oriented Hospitalisation Information would be enhanced to include information on day surgery, emergency room and ambulatory care as well as out-patient visits. The initiative would also provide new data on pharmaceutical use. Wherever possible, health care administrative data for LHAD is provided to Statistics Canada by the Canadian Institute for Health Information. Through LHAD, there will be pan-Canadian and comparative analysis across provinces to advance understanding of relationships among risk factors, socio-economic characteristics, other determinants of health, health status measures and health-care utilization and outcomes.

Canadian Cancer Registry (CCR)

The CCR is an administrative census that collects information on cancer incidence in Canada. The CCR is a collaborative effort between the 13 Canadian provincial and territorial cancer registries and Statistics Canada. Beginning in 1992, the CCR is person-based and describes both the individual with the cancer and the characteristics of the cancer. The CCR provides information about cancer incidence, survival and differences in cancer risks among different populations.

Drivers of HIRD research priorities

Research priorities for the health program at Statistics Canada are driven by information priorities of stakeholders, partners and Canadians, the availability of data and data analysis techniques, previous research findings and the subject matter and methodological expertise and skills of Statistics Canada researchers.

As the analytical arm of the health program at Statistics Canada, we must first meet the needs of the other health divisions, namely the Health Statistics Division (HSD) and the Physical Health Measures Division (PHMD). Members of our analytical staff sit on survey and program teams in order to consult on program development as well as keep informed of ongoing developments. We also consult with survey and program managers in order to know in advance and subsequently serve their analytical needs in relation to data releases and ongoing programs of research. The new content of the population health surveys program and new administrative data are key. All data programs have been developed in consultation with key stakeholders and are of high priority by design.

Our activities are also driven by the needs and priorities of the department as a whole. For example, if Statistics Canada takes part in international health-related research initiatives, such as the Budapest Initiative or the Washington City Group, then a member of HIRD typically becomes involved.

We also strive to develop and maintain research partnerships with internal and external clients whose requirements align with our priority research domains and our skills. As a result, one-third of the budget of Health Information and Research Division is funded by cost-recovery work. External funding partners in 2007/08 include the Health Council of Canada, Health Canada, Indian and Northern Affairs Canada, the Canadian Institute for Health Information (CIHI), the Canadian Population Health Initiative and the Canadian Council on Learning (CCL). We also collaborate with academic partners to undertake research funded through grants from the Canadian Institutes for Health Research and the U.S. National Institutes of Health.

There are also government-wide or health sector initiatives of high priority that sometimes require immediate ad hoc services. This could involve anything from fulfilling complicated data requests (such as those involving the CCHS 2.2 Nutrition data), preparing a more detailed program of information and data modeling (such as modeling acute myocardial infarction for Canada's Heart Health Strategy), and being involved with the design and analysis of new client-driven surveys (such as the Health Council of Canada's Primary Care Survey), to conducting more in-depth research (such as the health outcome research partnership with the Canadian Institute for Health Information or the development of a school-readiness index with the Canadian Council on Learning). This also includes preparation for and delivery of information to federal government house and senate committees or to the minister's office. Because of our rich data holdings and research expertise we are sometimes the only source of information available and must therefore be capable of being flexible to address emerging information needs.

Key Activities of the Annual Research Planning Cycle in HIRD

Beginning in 2007/2008, we have launched a new cycle of planning for research undertaken by Statistics Canada, within which this Multi-year Analytical Plan is an integral component. This cycle was designed to improve our ability to identify and respond to the most important information needs of our partners and Canadians and to enable us to better communicate our plans and our progress to senior management and key advisory groups.

1. Determine information priorities

Through consultation and an extensive environmental scan, a preliminary assessment of the information priorities of Statistics Canada is established. In 2007/2008, this involved the following steps.

- Interviews with managers of Statistics Canada's health programs who:
  - are aware of new developments in data availability;
  - have goals for the content and timing of key data releases; and
  - are informed about stakeholder information priorities.
- Review of the findings of recent national consultations including:
  - the 2007 Listening for Directions III consultation on health services and policy research:
  - the 2007 IBM evaluation of the federal government Health Information Roadmap Initiative; and
  - the 2007 Canadian Institute for Health Information national consultation on information priorities (see Appendix I).
- Consultation with experts within established research partnerships with Statistics Canada.
- Consultation with our in-house researchers who are:
  - in tune with current health issues;
  - knowledgeable about StatCan data holdings;
  - aware of the methods by which existing data can be used to reach its maximum information potential; and
  - knowledgeable about internal and external client needs.
- An extensive environmental scan of federal, provincial and territorial governments responsible for health and health services and university health research centre web sites to determine their current research priorities.

2. Set direction for Health Reports

Health Reports is Statistics Canada's flagship peer-reviewed journal. Its mission is to provide high-quality, relevant and comprehensive information on the health status of the population and on the health care system. *Health Reports* publishes original and timely analyses of surveys or national/provincial administrative databases. *Health Reports* welcomes excellent submissions from the Canadian and international research communities.

Statistics Canada made important changes to *Health Reports* in 2007/2008. The overall direction of the publication is now governed by an Editorial Board consisting of renowned experts in the field of health research and health policy, as well as senior officials of Health Canada, the Public Health Agency of Canada, the Canadian Institute for Health Information and Statistics Canada. In 2007/2008, the Board considered and recommended important changes to the publication to improve its timeliness, relevance, impact, visibility and accessibility.

The direction set by the Editorial Board influences the extent to which the research outlined in the annual plan is submitted for publication within *Health Reports* or through other vehicles.

3. Finalize multi-year research plan

Research planning is governed within Statistics Canada by the Research Planning Committee. This committee is composed of the Assistant Chief Statistician responsible for the health portfolio, the directors general, directors and assistant directors of the health portfolio divisions in Statistics Canada, and chiefs responsible for the Health Information and Research Division.

When the committee approves a draft of the multi-year plan, it is then distributed to key advisory groups for feedback to ensure that no issues of significance have been missed.

Groups that advise Statistics Canada on its health statistics programs include:

- The Board of Directors of the Canadian Institute for Health Information
- The Population Health Surveys Advisory Committee
- The Vital Statistics Council
- The Council of Cancer Registrars
- The Canadian Health Measures Expert/Analysis Advisory Committee
- The new Longitudinal Health and Administrative Data Initiative (LHAD) Steering Committee - a partnership between Provincial Ministries of Health, the Canadian Institute for Health Information and Statistics Canada.

The Research Planning Committee makes the final decision on the multi-year analytical plan. The committee also convenes throughout the year to review progress and to revise the plan, as required.

4. Share the research plan and progress report

Multi-year plans , the work plan for the upcoming year, and the progress report on the activities of the past year will be shared with committees that have been consulted and the *Health Reports* Editorial Board, and can be discussed at spring meetings or teleconferences. The multi-year analytical plan will be freely shared and publicly available to any group or individual interested in our work. The multi-year plan and the annual work plan will be revised by the Research Planning Committee, as necessary.

Establishing priority research themes for 2008/2009 to 2010/2011

To balance all the drivers of research planning, a three-tiered approach to priority setting was established with the following criteria:

Tier 1:

Tier 1 priorities are areas of research or themes that must be addressed to the satisfaction of the Research Planning Committee before other projects can be approved. To identify a given theme as a Tier 1 priority, the following criteria must be met:

- The information to be generated would be important to Canadians and has been identified by multiple stakeholders in the health field as a high priority.
- The research addresses both internal and external client needs.
- The research would optimize HIRD's comparative advantage relative to other research groups - which may be related to access to and knowledge of the data, privacy or other legislative concerns and/or the skills of the individual researchers.
- The human and financial resources are available to conduct the research.

Other factors that are not essential but may be considered when determining whether a given theme is to be identified as Tier 1:

- The research would highlight a new data set - which would address a client's needs as well as bring attention to new data for external data users.
- There is a partnership, with a policy agency or other research group to conduct and/or finance the research.

Tier 2:

Differentiating between Tier 2 and Tier 1 is a matter of degree. For example, Tier 2 themes are important to certain key stakeholders in the health domain but may not be seen to be as critical or as timely. Tier 2 themes would:

- showcase data or research methods that are strategic for Statistics Canada;
- address client needs; and
- exploit our comparative advantage.

Other factors taken into consideration for approval of research projects in this category would include:

- a partnership, with a policy agency or other research group to conduct and/or finance the research.
- a topic of great interest to the researcher in question.

External funding would not be considered essential, but certainly advantageous.

Tier 3

Tier 3 themes are of considerable interest to certain stakeholders, however, the Health Information and Research Division may not be as well placed as other organizations to focus on them, due to our data holdings and the priorities of our key stakeholders. **Essential factors** for approval would include external funding and researcher expertise.

Priorities can shift at any time and consequently the relative ranking of existing research themes may change. At the same time, new issues will emerge. Therefore, the weight of any given priority area must be closely monitored over time and the multi-year analytical plan reviewed and updated annually.

Tier 1 Research Themes

Mental health

Mental health and well-being are increasingly becoming issues of concern for governments, health agencies and Canadians. The burden of mental illness is considerable—not only for those who are personally affected, but also for their family members, friends and colleagues. Impaired mental or emotional health seriously limits day-to-day functioning and compromises quality of life, and consequently, the economic burden is also appreciable.

In 2002 Statistic Canada conducted the first nationwide survey of mental and emotional health: The Canadian Community Health Survey (CCHS), cycle 1.2—Mental Health and Well-being. Analyses of these data confirm that mental illness is common. At that time, an estimated 3 million Canadians had experienced a major episode of depression sometime in their lives, and in 2002, 1.2 million Canadians had a major depressive episode. Social anxiety disorder, panic disorder, manic episodes, and alcohol and illicit drug dependence were also experienced by tens of thousands of Canadians. The typical pattern of recurrent episodes amplifies the impact of mental disorders.

Recently, the focus has also included mental health and resiliency - that is, why do some people faced with similar life events survive and remain mentally well, when others do not? This focus, like others in the physical realm, helps to determine how Canadians can stay healthy and prevent the onset of illness.

In May 2006, the Standing Senate Committee on Social Affairs, Science and Technology published a report entitled "*Out of the Shadows at Last*" which presented their findings from a series of consultations and more than two thousand submissions on the subject of mental health, mental illness and addiction from all across Canada. The same year, the Public Health Agency of Canada released "*The Human Face of Mental Health and Mental Illness in Canada*".

Following this work, the federal government indicated its commitment to this issue with the establishment of the Mental Health Commission (MHC). As well as reforming mental health policies and service delivery, the MHC's mandate includes the dissemination of evidence-based information on all aspects of mental health and mental illness to governments, stakeholders and the public.

Therefore, based on our identified criteria, mental health is one of our highest priorities for research investment. It is identified as of current high concern by multiple stakeholders, and conducting research in this area would help address their significant information needs and fill existing information gaps. It is an area where much evidence is required to develop national policy. Because of our previous experience conducting analyses of CCHS 1.2 data, we are well positioned to conduct additional analyses of existing data and to help develop subsequent tools, should the need arise. This area is clearly of importance to Canadians, considering the magnitude of its impact. Our current complement of analysts has experience both with mental health survey data as well as knowledge of the research literature within this field of study. Should the demand increase, we are in a position to benefit from their expertise as well as quickly increase our analytical potential by taking advantage of fellowship and stipend programs.

Activities related to this theme could include:

- partnership with a policy agency or other research group to conduct and/or finance the research;
- ongoing analyses of existing data to optimize the information potential of our current data holdings;
- supporting the development of a valid short form to measure depression in ongoing population surveys, should funding be identified; and
- should other surveys be identified, being involved with survey teams to:
  - develop content;
  - develop a research and dissemination plan;
  - conduct descriptive analysis on the prevalence of particular disorders at the level of geography permitted;
  - conduct in-depth research on the factors related to mental illness and well-being; and
  - alone or in partnership, disseminate findings through tabular format, reports and publications, conference participation, workshops for other data users and as expert witnesses to committees, should the call arise.

Factors that contribute to healthy living and the reduction of chronic disease

The treatment of chronic diseases consumes much of Canadians' health dollars and impacts severely on quality and longevity of life. Many of these conditions, such as lung cancer, Type II diabetes, and heart disease, can be partially prevented through healthy living. This includes an active lifestyle, healthy eating, maintaining a healthy weight, smoking cessation, and eliminating excessive alcohol consumption. Most provincial and territorial governments, as well as the federal government, are currently involved with healthy living initiatives[1] and most have initiated measures to reduce the level of obesity among Canadians.

At the provincial level, initiatives range from eliminating junk food in schools to initiating minimum levels of physical activity during school hours. Others involve the development of promotional awareness campaigns related to good nutrition and physical activity.

At the federal level, the Healthy Canadians Initiative has been on going for some time. This initiative was instrumental in supporting Statistics Canada's national CCHS Nutrition survey and the development of the revised Canada Food Guide. The "Participaction" campaign has recently been reinstated and in response to "Healthy Weights for Healthy Children" the federal government has initiated many measures to reduce the level of obesity among Canadian children, including the "Child Fitness Tax Credit".

At all levels of government, legislation has been enacted to ban smoking in public places. Research conducted at Statistics Canada has shown that these measures are associated with an increase in smokers quitting and, even among those who continue smoking, a reduction in consumption.

The above outlines only a sample of federal and provincial initiatives related to the promotion of healthy lifestyles in Canada. Each major thrust requires information and research to support sound policy development and evaluation. Because of the high priority given to these issues and the capacity of StatCan data holdings to inform, continued research in these areas is considered key. Healthy lifestyles are not only of significant concern to multiple stakeholders, but to Canadians in general. Statistics Canada is also particularly well placed to contribute to these policy issues through the analysis of data from the Canadian Community Health Survey (CCHS), the National Population Health Survey (NPHS) and the Canadian Health Measures Survey (CHMS). New content related to healthy living was released in the spring 2008 CCHS and analytical and dissemination activity within HIRD has already been committed to the release of these data. CHMS data will be available in 2010 that will be able to provide more precise measures of physical fitness and levels of smoking. Further, continued examination of longitudinal NPHS data will provide new insights into long-term impacts of healthy living.

Another program of research within HIRD that can help inform issues of chronic disease prevention, taking into account lifestyle factors, is the POHEM (POpulation HEalth Model) program. The purpose of this research program is to create a virtual population health laboratory for testing new disease prevention and management strategies through computer simulations.

Therefore, activities related to this theme that could be conducted over the next three years could include:

- partnership with a policy agency or other research group to conduct and/or finance the research;
- analytical support for data release activities of Health Statistics Division and Physical Health Measures Division related to this theme;
- ongoing analysis of the CCHS Nutrition data;
- mining of the CHMS, CCHS and NPHS data to inform these issues;
- identification of potential ways to improve measures related to this theme, such as physical activity, and good nutrition indices; and
- exploiting the power of POHEM modeling to determine the relative benefits in terms of future chronic disease burden of alternative population and public health interventions to promote healthy living.

Health services - Wait times, primary care and access

Wait times has been a major issue for Canadians in the recent past and consequently provincial and federal governments have established initiatives to remedy long wait times for access to diagnostic technology, medical specialists and particular surgeries such as cataracts, and knee and hip replacements. The Health Council of Canada was established in order to assess the progress in improving the quality, effectiveness and sustainability of the health-care system. Their activities include monitoring, public reporting, and facilitating informed discussion on what helps or hinders health-care renewal and the well-being of Canadians. Though it is agreed that there has been significant improvement made in relation to wait times, recent consultations such as the Roadmap evaluation and the Listening for Directions III (LFD III) consultation, indicate that stakeholders want deeper analysis. For example, more information is required on the supply and distribution of doctors and nurses and other health services such as emergency care in non-acute settings, and the efficiency of different types of interventions. Information is also needed in relation to the care of specific vulnerable populations.

Despite the importance of this issue, there are no inter-jurisdictionally comparable data to report on wait times other than those that have been provided by the Health Services Access Survey (HSAS). Originally, the HSAS was funded and conducted as a stand-alone survey in 2001. Then a reduced set of HSAS questions was included in the 2003 CCHS with funding provided by Roadmap II. Although this funding lapsed, interest remained high, so that the 2005 and 2007 CCHS included this same subset of the original HSAS questions. The 2007 data was made available in June of 2008.

Other related information needs identified in the Roadmap evaluation, and both the LFD III and the Canadian Institute for Health Information (CIHI) national consultations, include the issue of primary care delivery and chronic disease management. Primary health care represents the first point of contact for Canadians seeking health-care services. Timely access to high quality primary health-care services is important to Canadians – as we look to primary health-care providers for much of our basic health-care needs as well as management of most chronic conditions. The need for improved primary health care is especially pressing as the Canadian population ages and chronic conditions become more prevalent. Access to multidisciplinary care teams has been identified as a key strategy to help Canadians better manage chronic conditions, and potentially reduce the need for visits to specialists and hospitals.

In the *10-Year Plan to Strengthen Health*, First Ministers recommended that "50% of the Canadian population have access to 24/7 primary health care by multidisciplinary care teams by 2011". In an effort to track progress on this and other initiatives in primary care, CIHI developed a list of 100+ pan-Canadian Primary Health Care Indicators. A patient survey was identified as a key data source to populate many of these indicators, including indicators of access, wait time, treatment and satisfaction.

The original HSAS, a subset of which is now a component of CCHS, collected a range of information on 24/7 access to first contact or primary care services. These data underlie several of the comparable indicators pursuant to the First Ministers Accord, including access to a regular family doctor, and difficulties accessing routine and immediate care. However, the CCHS platform does not allow for further expansion to complete the required indicators.

Despite improvements in wait times for specific health care services, the need for ongoing monitoring as well as more information on primary care and chronic disease management has been identified by several stakeholders as a high priority. It is for this reason, together with the fact that Statistics Canada is well-positioned to develop instruments and to analyse subsequent data to address this information gap, and because of its importance to Canadians and the expertise of HIRD analysts in this area, that health services has been identified as a Tier 1 priority.

In response to requests from the Health Council of Canada and the Canadian Institute for Health Information, HIRD analysts have been instrumental in the development of national surveys on Primary Health Care in Canada. Our resources will be used to analyse the results of the surveys and support further data development. Should funding be received for a more comprehensive survey, our Division would supply analytical support in this area.

Other analytical activity related to this theme could include:

- identification of potential ways to improve measures related to this theme;
- continued analysis of the HSAS component of CCHS;
- descriptive analysis of the health services indicators;

- analysis of the Primary Health Care surveys and further development of a more comprehensive Primary Health Care survey; and
- further analysis, research and dissemination of information from any new data collections in this area.

As discussed, chronic disease management represents another high priority area for policy makers and health-care managers across Canada's health-care system. Currently, information regarding the management of specific chronic conditions, like diabetes, arthritis and hypertension, is very limited, particularly as it relates to compliance with accepted clinical guidelines or best practices that can mitigate or prevent the progression of the disease. Statistics Canada has made some gains in the provision of information in this area, for example, through the development of the Diabetes Care module in the CCHS. However, much more information is needed. The Public Health Agency of Canada (PHAC) is currently working with Statistics Canada to define the most important chronic diseases from this perspective, and the most important disease management practices for each one.

Further work in this area could include:

- continued work with PHAC in the identification of the key chronic diseases to focus information requirements;
- work with key stakeholders to develop a survey, should this activity be identified for funding; and
- analysis and dissemination.

Health outcomes and health system performance

In both the Roadmap evaluation and the LFDIII national consultation, "health outcomes" was identified as a major information gap, indicating that present data holdings and information sources are inadequate to evaluate the various elements of our health-care system. A recent conference (October 2007) organized by the Canadian Medical Association and the Centre for the Study of Living Standards, had as its main purpose to discuss current sources of and potential new approaches to the collection of information to help guide us in establishing sustainable health care in Canada. That conference culminated with the participants calling on the Canadian government to improve the collection of health-care outcomes. The Health Council of Canada also indicated in their annual report that we do not have sufficient evidence to evaluate this issue. Canadians pay over $100 billion per year in taxes for health services and yet we do not know how effective our investment is.

Despite rapidly rising expenditures over the last decade that are expected to persist for the foreseeable future, value for money in health care has not been explored at a system level in Canada. International attempts to measure the impact of spending have not incorporated the less tangible benefits of health care (such as improvements in quality of life, reducing anxiety, equity implications, etc.) in a rigorous way. Consequently, in a project entitled "Value for money in health care" Statistics Canada is working with the Health Council of Canada to:

- inform and encourage a public conversation about what health care delivers at what cost. This may involve challengingwidely-held beliefs (e.g., "we need more health care resources to get better health"); and
- help decision-makers explain and implement changes that increase the value gained for investments made.

Improving measures of health care outcomes can help to inform policy and decision makers as to whether health care dollars are being spent efficiently, to identify possible changes in the way health care dollars could be allocated to improve the health status of Canadians, and to determine what types of institutional structures are likely to lead to the cost-effective use of health care dollars.

Clearly, information on the outcome of various treatment and service delivery options has important implications for all Canadians. It is also important to governments in order to efficiently allocate scarce resources, especially with the increasing demand the aging population will place on the health system. Without outcome measures, we cannot assess our own system in relation to individual patients and we cannot evaluate the relative effectiveness of our systems across provinces and territories, or internationally. The Health divisions of Statistics Canada, in partnership with other key stakeholders such as the Canadian Institute for Health Information, (CIHI) have the expertise and experience required to develop the necessary tools to measure health outcomes and to do the subsequent analysis. These collaborations should continue.

A new FPT partnership led by the Health Statistics Division of Statistics Canada – the Longitudinal Health and Administrative Data Initiative (LHAD) – is dedicated to conducting research on the continuum of patients characteristics, treatments and

outcomes through longitudinal analysis of health care administrative data linked with population health survey data and vital events databases. Through this initiative, HIRD will work together with provincial health ministries and CIHI on a program of health outcomes research. In partnership with CIHI, analysts within HIRD have already conducted some initial outcome analysis with existing data holdings in the areas of diabetes, depression, and joint replacement.

POHEM – the POpulation HEalth Model is another research program situated in HIRD which can address the need for comprehensive information and tools to assist policy makers in making informed choices about investment in health care. By partnering with experts in epidemiology, clinical research, health services research, statistics, computer science, simulation modeling, and quality of life research, POHEM can be applied to quantify and compare prevention-based and treatment-based approaches to reducing the burden of major chronic conditions in Canada, in terms of potential health gains, plausible health gains, and cost-effectiveness.

Consequently, HIRD analysts are in a critical position to inform issues related to health outcomes and health-system performance. Some of these activities could include:

- the design of research studies which would link administrative data to population health surveys, as part of the LHAD Initiative;
- within the POHEM program, the development and validation of a novel, multi-disease, population-based microsimulation model for Canada;
- application of the new POHEM model to quantify and compare prevention-based and treatment-based approaches to reducing the burden of major chronic conditions in Canada;
- build capacity to promote and expand the use of microsimulation modeling in health research and in the health policy community;
- partnership and collaborations with key stakeholders and other researchers;
- work with key stakeholders to develop better measures of health outcomes;
- disseminate analysis and research findings through reports, publications and conference participation.

Environmental markers and physical measures

The Canadian Health Measures Survey (CHMS) was developed by Statistics Canada in partnership with Health Canada and the Public Health Agency of Canada to address important data gaps and limitations in existing health information by collecting direct measures of health and wellness. The CHMS will be used to establish national benchmarks for a variety of important health indicators including obesity, hypertension, cardiovascular disease, nutrition, exposure to infectious diseases and exposure to environmental contaminants. In addition, the survey will provide insight into the fitness of Canadians and the extent of selected undiagnosed disease.

After several years of planning and implementation, CHMS data will be available for analysis in 2010. Implementing this survey has been a monumental effort, implicating substantial human and financial resources. The CHMS has a detailed analytical plan that describes and organizes key analytical activities. The plan was developed to ensure the priority health information needs that led to the funding of the CHMS are met and that sufficient advance planning is done to ensure extensive utilization of CHMS data for scientific publications, research training, policy development and knowledge creation in a timely manner.

Policy and decision makers in the health field as well as in the environment sector have eagerly anticipated these results since it is the first national survey of its kind in Canada. Data from this survey will address several national, provincial and territorial initiatives, including the many and diverse healthy living initiatives, the recently announced federal "Children and the Environment" initiative, and the ongoing monitoring of chronic disease prevalence in Canada.

Based on the importance of this information to Canadians and policy makers in the health care and environmental fields, and the need of our services to conduct timely analysis and the allocation of funds to do so, the analysis and dissemination of CHMS information will be a high priority over the next three years and beyond.

Analytical efforts will likely include:

- quality control analysis of initial survey returns;
- monitoring of adherence to the analytical plan and subsequent planning;
- establishment of partnerships and collaborations with external researchers;
- dissemination of analytical findings in reports, internal and external scientific journals and conference participation;
- workshops to help build analytical capacity with external data users;
- ongoing content development;
- development of research methods to adjust for discrepancies between self-reported and directly measured health indicators;
- research studies that would generate international comparisons; and
- research studies which would link administrative data to population health surveys, as part of the LHAD Initiative.

Health trajectories and healthy aging

Ever-lengthening life expectancy means that the "senior" phase of life continues to expand. During these later years, the good health and independence that were often taken for granted at younger ages can dwindle. In fact, it is often thought that health inevitably deteriorates with advancing age. Seniors, however, are a diverse group: there is no typical senior or typical experience of aging. Some Canadian seniors remain active and independent, while others may face debilitating conditions and rely on the help of others. Some continue to live in private households; others reside in long-term health care facilities. Many seniors feel positively about their health, yet others perceive a decline in their physical and psychological well-being.

It is important therefore to determine the relative effects of behaviours on the healthy aging of Canadians, and other factors such as connectedness to their communities and the impact of stress on health. Many seniors are concerned not only with the development of chronic diseases and conditions, but also with the loss of independence that may ensue.

Because of the rapid aging of the Canadian population, these issues are gaining priority. Many provincial governments as well as the federal government have initiatives related to healthy aging and improved models of care. Implicit in these are programs designed to enhance access to home, long-term and palliative care, which for the most part serve the elderly population. The LFD III consultation identified aging as an issue related to financing and sustainability of our health care system, considering the impact an aging population will have on health system resources. Because of these concerns to our key stakeholder, aging was chosen as the content of the next CCHS .2 survey. The survey is presently finalizing content through pilot testing and is scheduled to go in the field in 2008, with data available for analysis in 2009.

The longitudinal National Population Health Survey is ideally placed to support analysis of trajectories of healthy aging. Unlike the other population health surveys, it does have an institutional component. This lack of institutional data in other surveys is considered by many to be a serious information gap. By surveying only those that are living in residences implies that we are only surveying the healthiest of the elderly and therefore not providing a complete picture.

In 2006, several analysts within HIRD mined existing data sources, including the Canadian Community Health Survey, the National Population Health Survey, the Hospital Morbidity Database, and the Canadian Mortality Database, to conduct analysis and produce a special report related to "Health at older ages". Consequently there is considerable expertise within our Division to support subsequent initiatives.

Aging is clearly an information priority to many stakeholders concerned with population health, public health and health system management and is the focus of a major new Statistics Canada survey. As a result, it is one of HIRD's major research priorities over the next three years.

Analytical activity related to this theme over the next three years should include:

- the design of research studies which would link administrative data to population health surveys, as part of the LHAD Initiative;
- support to refinement of survey instruments;
- dissemination of analytical findings in reports, internal and external scientific journals and conference participation;
- establishment of partnerships and collaborations with external researchers; and
- exploration of the analytical implications of a lack of information on seniors living in institutions.

Health inequalities and vulnerable populations

Canada's health-care system is based on the principle of equal access to care and quality of care but research shows that there are still barriers to access to care including income, education and remoteness of residence. Even more importantly, socio-economic disparities among groups within our population create circumstances where opportunities to be born healthy, to live with full health and to remain free of disease are not equal.

This theme has been identified by various governments and in particular with reference to identified vulnerable populations such as Aboriginal peoples, the mentally ill, immigrants and the homeless. Better information to understand and address health inequities was identified in the LFD III consultation as it relates to access to the health care system and as one of four themes in the Canadian Population Health Initiative Action Plan.

Health inequalities are a major concern in many countries and will undoubtedly continue to be until inequities are considerably diminished. Statistics Canada is rich in data to help address these issues, such as CCHS, NPHS, Mortality data and most recently a new database linking the 1991 Census to 10 years of Mortality data.

The purpose of the latter project is to inform Canadians about systematic differences in mortality across various socio-economic characteristics. The indicators to be produced by this project are crucial to health planners and policy makers to detect important health disparities whether across income groups, marginalized populations, or industry and occupation. Furthermore, policy makers need to have a better understanding of the determinants of health disparities in order to develop and implement appropriate policies to reduce health disparities as directed by the First Ministers' Accord.

One of the immediate benefits of this linkage is that it will enable, for the first time, the production of reliable estimates of mortality and survivorship for special population sub-groups who often have significantly poorer health. These groups include Aboriginal peoples, persons with low education and/or low income, workers in certain occupations and persons with activity limitations. Only the Census can provide the necessary socio-demographic data. Because of its large sample size, this linkage study will allow the production of reliable indicators and policy-relevant health information that cannot be produced using existing survey data. The results will provide answers to basic questions such as: to what extent are persons in lower socioeconomic status groups at risk of premature mortality, and which causes of death are most responsible for the excess mortality? To what extent have these premature deaths been associated with economic hardship or lack of education?

Because this theme has been identified by key stakeholders as a priority and STC analysts are in a relative advantage to analyse existing national data sources, relative to privacy issues and access to data, it has been given Tier 1 priority. Analytical output over the next three years could include:

- developing a new approach to measure health inequality based on the concept of health-adjusted life expectancy or HALE;
- the design of research studies which would link administrative data to population health surveys to study disparities in health outcomes, as part of the LHAD Initiative;
- developing new health indicators for vulnerable populations;
- mining of the Census/Mortality linked database to measure inequality in mortality outcomes;
- help champion the cause of good and complete vital statistics data; and
- establishment of partnerships and collaborations with external researchers.

Methods

Working alongside survey teams enables HIRD analysts to have a comprehensive knowledge of survey development, an understanding of why certain data elements were captured as they were, the survey sample and the consequent data with inherent strengths, limitations and information gaps. In addition, HIRD analysts access master data files and in many cases have advance access to the complete file and often to preliminary files with which preliminary analyses can be conducted to support data quality verification. As well, the analysts have close contact with survey methodologists who understand the data intimately and appreciate the lengths to which the data can be mined. Consequently, StatCan analysts are likely to be the most frequent and knowledgeable users of our health data.

With this unparalleled access to the data comes an associated responsibility to the broader data user community. This has implications in terms of the lengths to which they should mine the data, such as linkages and pooling of various cycles of cross-sectional and longitudinal population survey data, but also in the extent to which they should explain to other data users the strengths and limitations of the data. For example, how to appropriately use nutrition data to explore associations with overweight, or the limitations of self-reported health measures such as height and weight. Not only should they point out the limitations of particular data but also help the user to minimize the limitations, such as with the development of correction factors. They should also identify the information gaps and try to work with stakeholders to address them.

Because of their advantage and consequent responsibility, HIRD expects that a certain portion of their efforts should be dedicated to the exploration of the data to their maximum potential as well as to their explanation for external users. The results of these efforts can be shared with other users at conferences and workshops but also through our own peer-reviewed journal, *Health Reports*. With the re-launch of this publication in January 2008, a new section entitled "*Methodological Insights*" was created to disseminate this information to the largest audience possible by way of indexation.

Because of Statistics Canada's enviable position as a world class data gathering and analytical organization, we also have a larger responsibility not only to users of our data but also to the development of methods and surveys, globally. For this reason, we are sometimes implicated in international initiatives, such as the Budapest Initiative and the Washington City Group where efforts are made to standardize data collection tools within developing countries but also in order to make valid international comparisons.

This work will require close collaboration with the survey teams and management of all the health-related divisions in order to gain insight to the data and establish priorities in terms of which projects should be initiated in any given year.

Tier 2 Research Themes

Children's health

The health of our children is clearly an important issue. For example, the federal government has identified specific initiatives related to "healthy weights". Included in this are the Child Fitness Tax credit, which encourages the establishment of active life styles, improved food labeling, and the elimination of foods containing trans fats for better nutrition. Another recently announced initiative involves "children and the environment". The framework for this initiative has yet to be totally developed, however, the focus is on minimizing the negative impact of the environment on children's health. Other initiatives have focused on specific subgroups such as pre-schoolers (child care, school readiness) as well as youth and adolescents (mental health, risk behaviours such as substance abuse). While some issues facing children's health are specific to particular age groups, others have a long-lasting impact throughout the course of life.

Within other divisions of Statistics Canada, there is currently specific activity related to children's health. For example, the National Longitudinal Survey of Children and Youth (NLSCY), which has a health component, is currently undergoing re-development. As well, the Aboriginal Children's Survey (ACS) is being released in the fall of 2008. Within the Health Statistics Division, there is discussion that CCHS 5.2 will focus on Children's health. Other data sources include the child components of the post-census Participation and Activity Limitations Survey (PALS), Aboriginal Peoples Survey (APS), as well as the Canadian Health and Measures Survey (CHMS).

In relation to the "children and the environment" initiative, it is likely that data from the CHMS will be able to inform Canadians of the level of contaminants, such as lead and mercury, in children.

HIRD currently has a strong complement of researchers who are dedicated to the study of children. However, because much of their work has been conducted on a cost-recovery basis and of interest to some but not all health stakeholders, children's health has currently been identified as a Tier 2 priority. Because of their strength related to subject matter, survey content, and analytic expertise, these researchers should be called upon to contribute, particularly where Statistics Canada has strategic and comparative advantage. Because HIRD is funded in large measure by cost-recovery work, this is also a major consideration.

Therefore, analytical work that is likely to take place over the next three years includes:

- content development work on the CHMS, the NLSCY and CCHS 5.2 (should the theme of children's health be decided);
- analysis of CHMS data related to health measures which are particularly relevant to children
- analysis of contaminants in children from the CHMS;
- analysis of current StatCan data holdings;
- studies of the impact and patterns of health (physical activity) and risk (substance abuse) behaviours;
- analytical work with the Aboriginal Children's Survey;
- ongoing analysis of sub-populations of children (e.g., children with disabilities)
- responding to clients' needs with respect to child relevant data and analyses
- ongoing analysis of the sub-population of health of children, when conducting research, to identify if there are any age-related factors in a given subject; and
- dissemination of research findings through, papers, publications and conference participation.

First Nations, Métis and Inuit Populations' Health

Aboriginal health is another crosscutting theme. In the major federal initiatives, such as establishing healthy weights for children and focusing on the mental health of Canadians, Aboriginal people are specifically identified as a sub-group where more information is needed. In the effort to reduce inequalities related to the health and access to health services among Canadians, Health Canada has identified Aboriginal people as one of their four strategic outcomes - "Better Health Outcomes and Reduction of Health Inequalities Between First Nations and Inuit and Other Canadians". And some provinces have

identified these populations as in need of special attention when determining policy related to developing healthy living strategies.

There is a group of researchers within HIRD who have done extensive work in this area in response to cost recovery work internally through Venture Capital initiatives and externally in collaboration with outside researchers as well as other federal departments such as INAC and Health Canada.

Within Statistics Canada, both the Aboriginal Peoples Survey and the Aboriginal Children's Survey will be releasing data in the fall of 2008. Researchers within HIRD have already been working with these survey teams.

Aboriginal health research has been identified as important by stakeholders and, in some cases, HIRD has a comparative advantage in pursuing research projects because of expertise and good collaborations with leaders in Aboriginal organizations. Work in this area will continue, but approval of projects will be more strategic. Some of this activity could include:

- collaboration with Social and Aboriginal Statistics Division (SASD) to conduct analytical work with both the APS and ACS survey data;
- continued work with the Venture Capital fund related to Aboriginal research;
- collaboration with INAC and HC and other external agencies requiring the research capacity within HIRD; and
- research with the Census/Mortality data linkage file to examine life expectancy and outcomes for Aboriginal populations.

Environment and health

Though environmental initiatives are currently of national significance, Statistics Canada is not in as strong a position to focus on this area of research – with the exception of CHMS data related to environmental contaminants,. For example, development work is required before we can examine the impact environmental factors such as air and water quality may have on the health of Canadians. While existing data holdings may bear some fruit, it is likely that investment in data collection would be needed to move this agenda forward. Though we are currently involved in a departmental initiative to determine the areas where we can conduct research, our research program in this area will be limited over the next three years. We will build a small team to explore data development options and research opportunities with existing data holdings and build capacity to undertake geo-spatial analysis. We will continue to monitor the situation at Statistics Canada and where opportunities arise, collaborate.

Therefore, though environmental factors related to health are currently seen to be of high priority, we have limited capacity to inform the discussion. However, where we can, especially in relation to "children and the environment" we will contribute.

Work we can do over the next three years includes:

- analysis of CHMS data related to environmental contaminants;
- continued involvement with the Departmental Committee on Health and the Environment;
- examine the potential of GIS technology for spatial analysis of health and the environment;
- development of data and expertise within the team; and
- where feasible, undertake analytical projects and develop research partnerships.

Disabilities and Injuries

In 2003, injuries caused the death of 13,906 Canadians. They are, in fact, the leading cause of death between the ages of 1 and 44, and the 4th leading cause of death for Canadians of all ages.

Hospital admissions due to injury in FY 2002/2003 numbered 226,436. The cost of unintentional and intentional injuries combined is estimated to be greater than $12.7 billion per year, ranking 4th after cardiovascular disease, musculoskeletal conditions and cancer.

However, unlike certain diseases and chronic conditions, injury is largely preventable. Therefore the more we understand about the determinants and correlates of injury, the better we will be able to devise effective prevention strategies.

Injury is one of a very few topics that has always been core content in the CCHS, which indicates that the provinces regard it as a high priority for public health surveillance. Also, the fact that injury has been selected as a theme for the 2009 CCHS is evidence of its importance.

Current work could include:

- content development on disabilities and injuries for CCHS;
- analysis of Participation and Activity Limitation Survey (PALS) data which have recently been released, and
- collaboration with PALS analysts.

Tier 3 Research Themes

As mentioned at the outset, the research themes within this tier are important but do not rank as high when measured against our criteria for establishing an analytical plan. However, the interests of partners will dictate whether projects in these areas will likely be conducted over the next three years. It is essential, however, that external funding be available to initiate any projects related to these themes.

Health Human Resources

Health Human Resources (HHR) was identified as a high priority by all large federal consultations due to concerns related to sustainability of our health-care system. However, due to our data holdings, Statistics Canada is not currently as well placed as other institutions, such as the Canadian Institute for Health Information (CIHI), to conduct such research.

There are however, some areas where we can and should contribute. For example, Statistics Canada, in collaboration with Health Canada and CIHI, recently conducted the National Survey on the Work and Health of Nurses (NSWHN). HIRD analysts received funding for the analyses of these data and published the subsequent report. And currently, Special Surveys Division is exploring the feasibility of conducting a similar, though not quite as extensive, survey on other groups of health professionals.

We also had a substantial presence at the recent CIHI-sponsored conference on Health Human Resources, outlining StatCan-related data holdings and its potential for analysis.

Should funding become available we will become more involved in this area, due to its importance to health stakeholders and our current expertise.

Possible activities in the coming next three years include:

- further analysis of existing data;
- development of Heath Human Resources surveys; and
- continued mining of Nurses (NSWHN) data.

Immigrant health

HIRD analysts have shown in past research that immigrant health, both physical and mental, is relatively good in comparison to the general Canadian population. This is due in large measure to the selection effect. For example, immigrants to Canada are selected against a list of criteria with overall health among them. As such, the health, wealth and education of recent immigrants rank well against the average Canadian. Often after years living in Canada, their health status becomes more similar to the average Canadian. This phenomenon has been referred to as the "Healthy immigrant effect" and has been documented in other western nations as well. However, concerns regarding the health of immigrants from selected source countries and barriers to health care access ensure that immigrant health remains of interest to certain stakeholders. Language capacity, in particular, has been shown to have an impact on access to health services. This is particularly policy relevant to urban centres where immigration rates are high. It is also a crosscutting issue with education.

HIRD analysts have previously been involved in international collaborations and with Venture Capital initiatives. Because of expertise within our division we have the capacity to conduct further work, but this will be limited to special requests, cost-recoverable projects and requests of the partners within the Longitudinal Health and Administrative Data Initiative.

Potentially more work in this area could include studies of:

- the effect of inability to "speak the language" on overall health;
- health literacy and its impact on immigrants' health; and
- the effect of discrimination on mental health.

Place and health

Canada is a large country with vast differences in terms of geography, population density, culture, environment and income. Research has demonstrated that all these factors play a role in the health of Canadians, but how they contribute is not always clear. Current research is looking at other factors related to "place" such as proximity to such resources as fast-food restaurants and medical clinics and walkability of communities as they pertain to overall health.

The Canadian Population Health Initiative (CPHI) retained "place and health" as one of their four themes of focus over the next three years. It encompasses many other social determinants but, because of its impact, will also be identified on its own.

HIRD, however, has limited capacity to conduct "place and health" research in relation to other themes. Some of the research that will be conducted with the Census Mortality linkage project will touch on these factors.

It has been suggested that we could examine the feasibility of using GIS technology to do research in this area, but that is only at the conceptual stage at this point. We may explore the capacity to do this type of work and possibly collaborate with researchers in the Geography Division, but unlikely that we will commit to doing such research within the next three years unless funding becomes available.

Infectious disease

Canadians' concern about infectious diseases, such as HIV and hepatitis, and potential pandemics has increased since the huge impact of SARS on health, health services and the economy.

However, with the exception of CHMS, Statistics Canada presently holds no data on infectious disease. When such data become available through CHMS and possibly LHAD, these issues could then be addressed at the population level.

Human Resources Strategy for HIRD

In order to meet these multi-year analytical priorities, we need to ensure that our research team is adequately staffed and that our staff members have the knowledge and skills required to conduct the research and that they are constantly updated and trained in current methods. Key components of our human resource strategy include participation in the regular processes of hiring and promoting analytical staff at Statistics Canada, as well as conducting specialist competitions open to all Canadians to engage and promote skilled and experienced researchers. To retain our talent and ensure that we have in-house knowledge of current research methods, we will:

- promote knowledge exchange by working in research teams with internal and external colleagues;
- conduct monthly in-house seminars;
- encourage participation in conferences;
- provide specialized training opportunities; and
- encourage staff to take part in Statistics Canada courses as well as appropriate external training opportunities.

To ensure that our staff has the capacity to communicate well in both official languages with internal and external clients and colleagues, we encourage and support language training.

With assistance from Statistics Canada's envelope for analysis, we also maximize our research potential by offering research fellowships, PhD stipends and post-doctoral fellowships.

In 2007/08, there were two research fellows in health measurement, one research fellow in microsimulation modeling, three PhD stipend students in longitudinal research with the National Population Health Survey and one post-doctoral fellow in child health. In 2008/09 to 2010/2011, there will be further specialist competitions for research program leaders as well as for entry-level researchers and post-doctoral fellows. PhD stipend and research fellowship opportunities are also envisaged.